IMPLANTATION OF ENCAPSULATED BIOLOGICAL MATERIALS FOR TREATING DISEASES

Abstract of the Disclosure

The present invention relates to compositions and methods of treating a disease, such as diabetes, by implanting encapsulated biological material into a patient in need of treatment. This invention provides for the placement of biocompatible coating materials around biological materials using photopolymerization while maintaining the pre-encapsulation status of the biological materials. Several methods are presented to accomplish coating several different types of biological materials. The coatings can be placed directly onto the surface of the biological materials or onto the surface of other coating materials that hold the biological materials. The components of the polymerization reactions that produce the coatings can include natural and synthetic polymers, macromers, accelerants, cocatalysts, photoinitiators, and radiation. This invention also provides methods of utilizing these encapsulated biological materials to treat different human and animal diseases or disorders by implanting them into several areas in the body including the subcutaneous site. The coating materials can be manipulated to provide different degrees of biocompatibility, protein diffusivity characteristics, strength, and biodegradability to optimize the delivery of biological materials from the encapsulated implant to the host recipient while protecting the encapsulated biological materials from destruction by the host inflammatory and immune protective mechanisms without requiring long-term anti-inflammatory or anti-immune treatment of the host.

H:\DOCS\CSC\CSC-5883.DOC:jm
101203